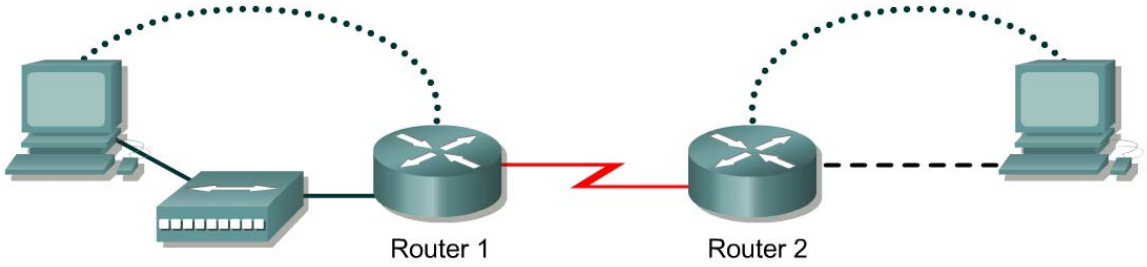
Lab 7.2.7 Preventing Routing Updates Through an Interface



Router designation	Router Name	Enable secret password	Enable/VTY/ and Console passwords	Routing protocol	RIP network statements	
Router 1	GAD	class	cisco	RIP	192.168.14.0	192.168.15.0
Router 2	BHM	class	cisco	RIP	192.168.15.0	192.168.16.0

Router designation	IP Host Table Entry	Fast Ethernet 0 address	Interface type Serial 0	Serial 0 address	Interface type Serial 1	Serial 1 address	Subnet mask all addresses
Router 1	BHM	192.168.14.1	DCE	192.168.15.1	NA	No address	255.255.255.0
Router 2	GAD	192.168.16.1	DTE	192.168.15.2	NA	No address	255.255.255.0

Note: The IP Host Table Entry column contents indicate the name(s) of the other router(s) in the IP host table.

Straight-through cable	———	Console (Rollover)	·····
Serial cable	———	Crossover cable	- - - -

Objective

- Prevent routing updates through an interface to regulate advertised routes.
- Use the **`Passive-interface`** command and add a default route.

Background/Preparation

This lab will focus on preventing routing updates through an interface to regulate advertised routes and observing the results. To make this work, it is necessary to use the **`Passive-interface`** command and add a default route.

Cable a network similar to the one in the diagram. Any router that meets the interface requirements displayed in the above diagram, such as 800, 1600, 1700, 2500, 2600 routers, or a combination, may be used. Please refer to the chart at the end of the lab to correctly identify the interface identifiers to be used based on the equipment in the lab. The configuration output used in this lab is produced from 1721 series routers. Any other router used may produce a slightly different output. The following steps are intended to be executed on each router unless specifically instructed otherwise.

Start a HyperTerminal session as performed in the Establishing a HyperTerminal session lab.

Note: Go to the erase and reload instructions at the end of this lab. Perform those steps on all routers in this lab assignment before continuing.

Step 1 Configure the hostname and passwords on the routers

a. On the routers, enter the global configuration mode and configure the hostname as shown in the chart. Then configure the console, virtual terminal and enable passwords. When having a problem doing this, refer to the Configuring router passwords lab. Next configure the interfaces and routing according to the chart. If there is a problem doing this, refer to the Configuring Host Tables lab and the Configuring RIP lab. Make sure to copy the **`running-config`** to the **`startup-config`** on each router.

Step 2 Configure the hosts with the proper IP address, subnet mask and default gateway

a. Test the configuration by pinging all interfaces from each host. If the pinging is not successful, troubleshoot the configuration.

Step 3 Check Basic Routing Configuration

a. Enter **`show ip protocol`** command on each router.

b. In the configuration, is "Routing protocol is RIP" displayed?

_____.

c. Enter the command **`show ip route`** on both routers. List how the route is connected (directly, RIP), the IP address and via what network or interface.

GAD

Route connected	IP address	Through Network / Interface

BHM

Route connected	IP address	Through Network / Interface

Step 4 Observe RIP routing updates

a. From the GAD router, use the **`debug ip rip`** command to verify that the router is sending updates out the interface to the BHM router. Look for a section in the output that looks something like the following:

```
GAD#debug ip rip
RIP protocol debugging is on
GAD#
*Mar 1 03:12:17.555: RIP: sending v1 update to 255.255.255.255 via
FastEthernet 0 (192.168.14.1)
*Mar 1 03:12:17.555: RIP: build update entries
*Mar 1 03:12:17.555:  network 192.168.15.0 metric 1
*Mar 1 03:12:17.555:  network 192.168.16.0 metric 2
*Mar 1 03:12:17.555: RIP: sending v1 update to 255.255.255.255 via
Serial0 (192.168.15.1)
*Mar 1 03:12:17.555: RIP: build update entries
*Mar 1 03:12:17.555:  network 192.168.14.0 metric 1
```



```
*Mar 1 03:12:22.671: RIP: received v1 update from 192.168.15.2 on
Serial0
*Mar 1 03:12:22.671:   192.168.16.0 in 1 hops
```

b. Other **debug** commands that function with RIP are the following:

```
debug ip rip events
debug ip rip trigger
debug ip rip database
```

c. To turn off specific **debug** commands type the **no** option, such as **no debug ip rip events**. To turn off all **debug** commands type **undebug all**.

Step 5 Stop routing updates from GAD to BHM

a. On the console session for the GAD router, enter global configuration mode and then enter router configuration mode by entering the command **router rip**. Enter the command **passive-interface serial 0**. Refer to the chart at the end of the sheet for the model or router. This will prevent the GAD router from advertising its routes to the BHM router.

b. To confirm this, use the **debug ip rip events** command on the GAD router. Verify from the output that the router is not sending updates out the interface to the BHM router.

c. Disable the debug output with the **no debug all** command.

d. Also from the BHM router, issue the **show ip route** to verify that the route to the GAD LAN has been removed.

e. Attempt to ping from the computers in GAD to the computers in BHM.

f. What is the response? _____

g. Confirm that the BHM router is still sending update to GAD. To do this, use the **debug ip rip events** command on the BHM router. Verify from the output that the router is sending updates out the interface to the GAD router.

h. How many routes are being sent? _____

i. Disable the debug output with the **no debug all** command.

Step 6 Add Default Route to BHM

a. Since BHM is not getting routing updates, it does not have a route to the outside world. It needs to be provided with a default route. A default route is the route that data is sent out if the routing table does not have a specific route to use.

b. From the global configuration mode of BHM, enter:

```
BHM(config)#ip route 0.0.0.0 0.0.0.0 192.168.15.1
```

c. Verify the default route is in the BHM routing table by issuing the **show ip route** command.

There should be an output similar to the following:

```
BHM#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
    D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
    N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
    E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
```



```
        i - IS-IS, L1 - IS-IS level-1, * - candidate default
        U - per-user static route, o - ODR

Gateway of last resort is 192.168.15.1 to network 0.0.0.0

C   192.168.15.0/24 is directly connected, Serial0
C   192.168.16.0/24 is directly connected, Ethernet0
S*  0.0.0.0/0 [1/0] via 192.168.15.1
BHM#
```

d. Be sure to be able to ping from the computers in GAD to the computers in BHM. If not check routing tables and interfaces.

Upon completion of the previous steps, log off by typing **exit** and turn the router off.

Erasing and reloading the router

Enter into the privileged EXEC mode by typing **enable**.

If prompted for a password, enter **class**. If “class” does not work, ask the instructor for assistance.

```
Router>enable
```

At the privileged EXEC mode, enter the command **erase startup-config**.

```
Router#erase startup-config
```

The responding line prompt will be:

```
Erasing the nvram filesystem will remove all files! Continue?
[confirm]
```

Press **Enter** to confirm.

The response should be:

```
Erase of nvram: complete
```

Now at the privileged EXEC mode, enter the command **reload**.

```
Router#reload
```

The responding line prompt will be:

```
System configuration has been modified. Save? [yes/no]:
```

Type **n** and then press **Enter**.

The responding line prompt will be:

```
Proceed with reload? [confirm]
```

Press **Enter** to confirm.

In the first line of the response will be:

```
Reload requested by console.
```

After the router has reloaded the line prompt will be:

```
Would you like to enter the initial configuration dialog? [yes/no]:
```

Type **n** and then press **Enter**.

The responding line prompt will be:

```
Press RETURN to get started!
```

Press **Enter**.

The router is ready for the assigned lab to be performed.

Router Interface Summary					
Router Model	Ethernet Interface #1	Ethernet Interface #2	Serial Interface #1	Serial Interface #2	Interface #5
800 (806)	Ethernet 0 (E0)	Ethernet 1 (E1)			
1600	Ethernet 0 (E0)	Ethernet 1 (E1)	Serial 0 (S0)	Serial 1 (S1)	
1700	FastEthernet 0 (FA0)	FastEthernet 1 (FA1)	Serial 0 (S0)	Serial 1 (S1)	
2500	Ethernet 0 (E0)	Ethernet 1 (E1)	Serial 0 (S0)	Serial 1 (S1)	
2600	FastEthernet 0/0 (FA0/0)	FastEthernet 0/1 (FA0/1)	Serial 0/0 (S0/0)	Serial 0/1 (S0/1)	
In order to find out exactly how the router is configured, look at the interfaces. This will identify the type of router as well as how many interfaces the router has. There is no way to effectively list all of the combinations of configurations for each router class. What is provided are the identifiers for the possible combinations of interfaces in the device. This interface chart does not include any other type of interface even though a specific router may contain one. An example of this might be an ISDN BRI interface. The string in parenthesis is the legal abbreviation that can be used in IOS command to represent the interface.					

